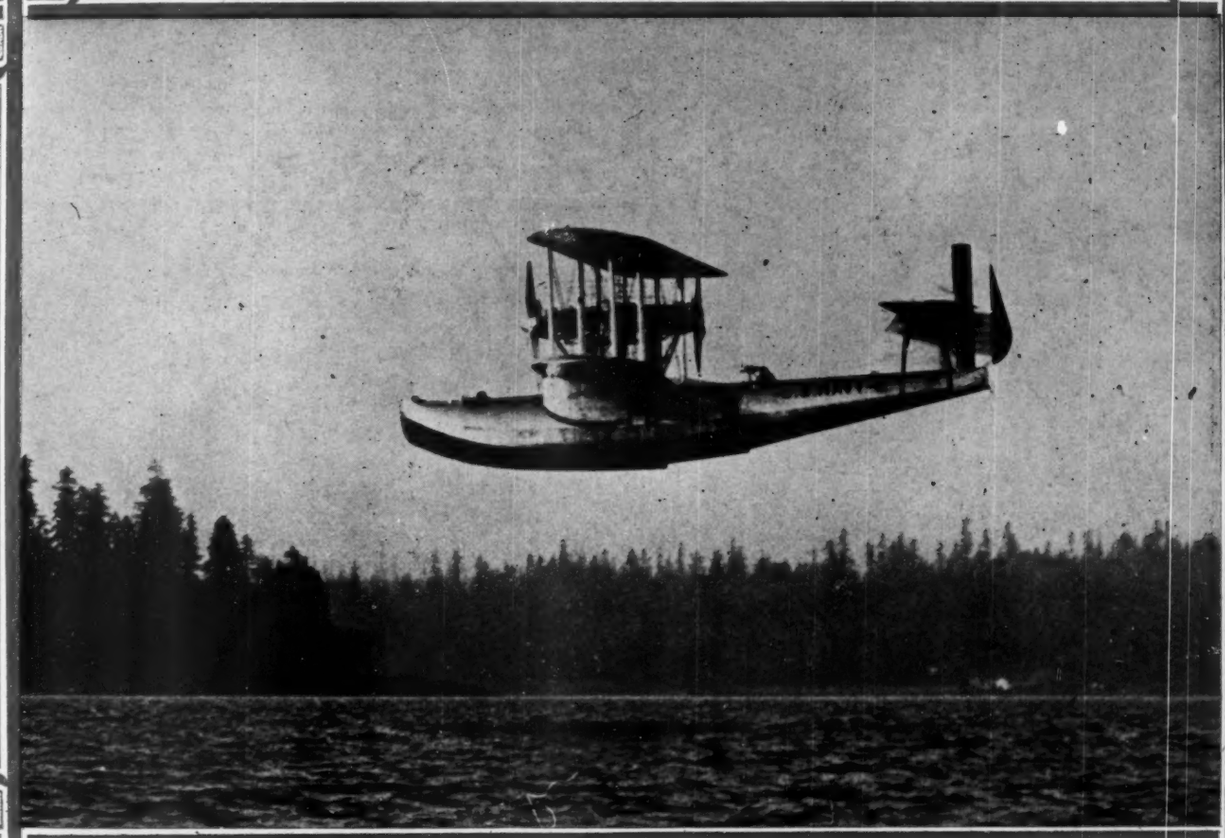
AVIATION

The Oldest American Aeronautical Magazine

AUGUST 17, 1925 Issued Weekly PRICE 10 CENTS



Boeing seaplane (Navy PB1 type) tuning up at Lake Washington for Hawaiian flight

Photo International Newsreel

VOLUME XIX

NUMBER 7

SPECIAL FEATURES

HENRY FORD BUYS STOUT COMPANY

NAVY READY FOR HAWAIIAN FLIGHT

REGULATIONS FOR NATIONAL AIR RACES

EDITOR OF L'AERONAUTIQUE VISITS UNITED STATES

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y. under Act of March 3, 1879.

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Ask The Man Who Owns One

AUGUST 17, 1925

AVIATION

VOL. XIX. NO. 7

Published every Monday

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CURTISS CARRIER PIGEON

Let the Operator Keep Faith with the Public

The public demand for the transportation of passengers, mails and express matter by the air route places a definite responsibility upon all those who are studying the problem of air operation.

There seems to be no question that companies now organized will receive the sympathetic support of the public in exact proportion to the judgment, experience and honesty which they exercise in their pioneer operations. The greatest care must be used in organizing along practical and conservative lines The success or failure of this enterprise will depend largely on two factors, personnel and equipment.

PERSONNEL. The personnel will be found available among that group of airmen produced by the war who are devoting their lives to the application of aviation to civilian needs.

EQUIPMENT. Obviously the Aircraft Operating Companies, not themselves designers or builders, must select their equipment from the best which the aircraft industry can supply.

The Curtiss Aeroplane & Motor Company, the oldest airplane and motor producer in the country, and the organization that has been the creative and productive source of the best military airplanes and motors, has directed its creative energy toward the commercial problem. It was the first company to design, build and test an airplane for the specific requirements of the Air Mail Service. The Curtiss Carrier Pigeon was at once accepted by the Post Office. The expert committee of the National Air Transport, Inc., after a coast-to-coast survey of available equipment, recommended the Curtiss Carrier Pigeon, and the company at once placed an order for a quantity of these machines.

As interchangeability of parts with consequent reduction in cost of maintenance was an important factor in the selection of the Carrier Pigeon by one company, so standardization of airplanes of one type and of one manufacturer by the Post Office and the leading operating companies will make efficient and economical operation possible. The use by all pilots of one type, the standardization of interchangeable spare parts for general distribution from Curtiss stores throughout the country, and the reduced price of planes and parts through centralized quantity production will make the Carrier Pigeon the standard commercial airplane. For "feeder lines" the Curtiss Lark, a smaller prototype of the Pigeon, will shortly be available.

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VOL. XIX AUGUST 17, 1925 No. 7

Air Traffic

IT cannot be denied that, in regard to air traffic, there has been a great change in the opinion of many keen observers of the trend of aviation development. A year or two ago there seemed to be a very positive conviction that passenger carrying would be the most important source of revenue of air routes. The Aeromarine Airways and the New York-Newport line in this country, and the many air lines in Europe gave promise of a hopeful growth of this form of traffic. It must be admitted that the results have been distinctly disappointing. Here, as abroad, it has become increasingly evident that passenger traffic is composed largely of those who are on a holiday and want to include an air trip among their other pleasures. In Europe, the large subsidies have enabled thousands of tourists to enjoy one or more of the regular inter-city routes that have been encouraged by governments, desiring to keep the air routes in operation for reasons that have no concern with the kind of traffic carried.

Of late, however, there seems to be a tendency among the more farsighted students of air traffic to look to the carrying of mail and goods as the basis of air traffic and to regard passenger carrying as incidental, at best, and perhaps of a comparatively unprofitable character. The reason is not hard to discover. Mail and express matter is not bulky and can bear an excess charge that in the final income showing encourages the operators of air lines. The volume of such traffic has shown a great increase on all lines. Passengers take up much room and require extra facilities both on board and at terminals. Then, too, they make a direct comparison with existing transportation facilities in respect to regularity of service, saving of time and cost. If these are not attractive, the traffic reflects the conditions. With mail and goods, these factors are not as personal.

While it is too early to make too positive assertions as to the future of as new a transportation vehicle as the airplane, it will be of the greatest importance to designers to take into account the apparent change in character of the traffic basis of air transport. Aircraft designed for passengers and for goods are very different in their requirements. The two types will each have proponents but their development will proceed along very different lines. AVIATION will be glad to contribute to this most important discussion by printing the views of those who have made a serious study of the two forms of traffic and their possibilities.

The Duration Record

TWO years ago the United States held practically all the important airplane records. Speed, altitude and duration were all ours, and all these records were made by airplanes owned and operated by the government. Then the French government decided that its aeronautical prestige was being menaced, but instead of building pseudo military machines to break records, it put up substantial prizes which would go to the manufacturer who would bring a record back to France. Within a year practically every important record had returned to France or rather to the firms which constitute the French aeronautical industry.

When the government holds all the records as it did in the United States, there is some danger that it may use the prestige thus obtained to hide the true condition of its service squadrons. When a constructor holds a world's record, it brings him a world wide reputation which may allow him to sell his products abroad. When the Farman firm builds a plane capable of remaining in the air for forty-five hours it can profit directly by its achievement. When the U. S. government flies a T3 for thirty-six hours much prestige is created but there are no direct sales results as far as the U. S. constructors are concerned.

There are many who quarrel over the practical value of records, especially of speed and altitude records, but duration records come into another class. To break an endurance and distance record, a plane must be strong enough to carry the great overload of fuel; it must be easy to fly or else the pilots would become exhausted; it must have a remarkably reliable power plant; it must have cabin capacity to carry the great quantity of fuel necessary and finally it must carry a large load per horsepower which indicates economy in commercial operation. In short, although it may not be maneuverable, a plane which establishes a new distance record must with little conversion be a practical machine for transport uses, whereas the planes which hold speed and altitude records must usually be changed before they become service types.

The New Air Service Uniform

ANOTHER long stride will have taken place toward the independence of airmen when the new uniform is generally worn by the Air Service officers. It may seem to be a trivial matter to be elated about, but it will do much to differentiate the flier from the sea or land officer. It needs only to be mentioned how the Marine Corps uniform has created a pride of service and distinctly favorable morale to show how such a distinctive garb can affect a service. While the color desired—blue which is the natural element of the airman—was not adopted, a concession was made to the comfort of the flying officer.

Now that the Air Service officer can be distinguished from the other personnel of the Army, he will assume a new obligation. The public will judge the Air Service to a great extent by the impression it receives from the wearers of the new uniform, and added distinction may be secured with little effort by making the first impression favorable.

Navy Ready for Hawaiian Flight

Elaborate Arrangements Made to Insure Success. Effort Will Be Made to Start on August 28

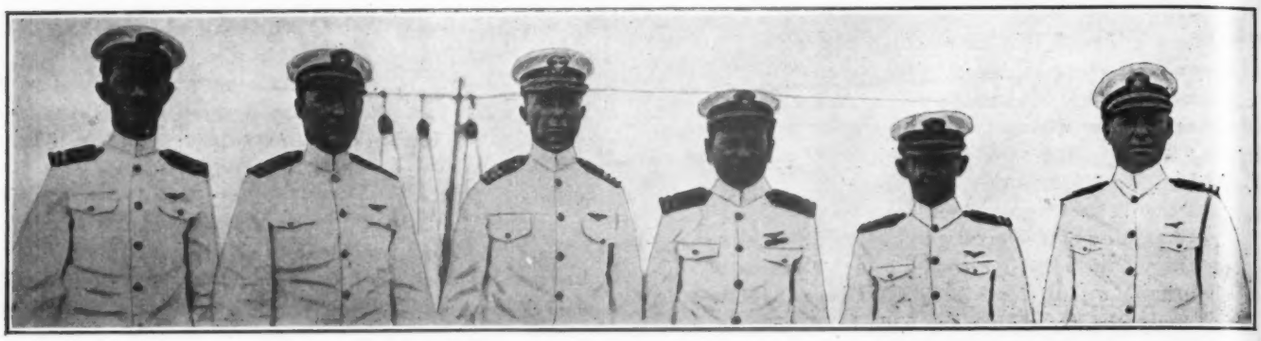
The following information on the plans for the flight of three Naval seaplanes from the West Coast of the U. S. to Honolulu, T. H. is based on the Instructions for the flight prepared by the Commander, Aircraft Squadrons Battle Fleet, Capt. S. E. Moses, USN, commanding the project.

The route of the flight will be either from San Diego, Calif. or San Francisco, Calif., to Kahului, Maui, Hawaii, on a Mercator course and thence direct to Honolulu. The date of the flight will be Aug. 28 or soon thereafter.

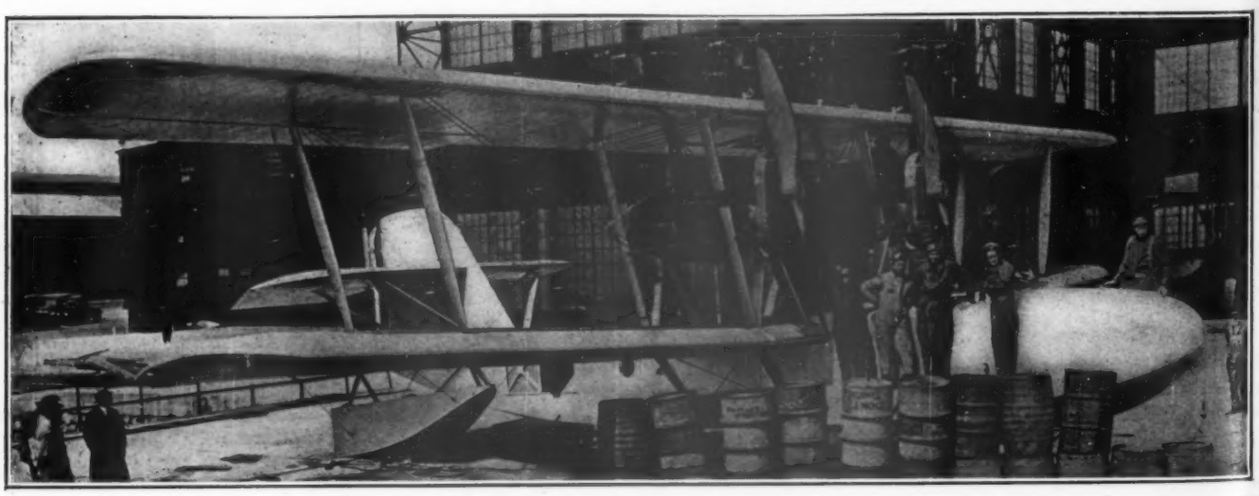
The distance to be flown, if San Diego is the starting point, is 2180 mi., and if San Francisco is the starting point, 2030 mi. Eleven Naval vessels; aircraft tenders, destroyers and mine sweepers, will be stationed at even intervals along the route of the flight. It has been estimated that the flight will take slightly over 27.5 hr. if San Diego is the starting point, and slightly over 26 hr. if San Francisco is the starting point. These times are based on an assumption of 70 knots average flying speed. The vessels to be stationed as plane guards, arranged in the order of their stations, east to west, is as follows: This order will obtain irrespective of the starting point, with the exception noted. *William Jonrs, McCauley, Corry, Meyer, Doyen, Langley* (aircraft carrier), *Reno, Farragut, Aroostook* (aircraft tender), *Tanager*, and *Whippoorwill*. The last named will be stationed in the line of flight if San Diego is the starting point, otherwise, she will be stationed some 30 mi. north of the Island of Oahu, Hawaii. The U.S.S. *Gannet* will be available at the starting point ready to follow the planes to sea, and prepared for salvage operations in case of accident at the start of the flight.

During the flight, unless otherwise directed, the planes will at all times keep within visual signal distance of each other, weather permitting. If impracticable, each plane will proceed independently, endeavoring to keep in radio touch with the other planes. Upon nearing Honolulu the planes will be met by an escort of three planes from the Naval Air Station, Pearl Harbor, near Honolulu. After the completion of the flight the planes will base at the Naval Air Station, Pearl Harbor, awaiting further orders.

It has been calculated from prevailing summer conditions over the portion of the Pacific to be traversed by the planes that if the start is made from San Diego the planes will encounter a wind from the north of approximately 23 knots, velocity for the first 600 mi. of the flight, and a wind from the northeast of the same velocity for the remainder of the distance. If San Francisco is the starting point, a north wind of 23 knots velocity will be encountered for the first



Aviators who will take part in the Navy flight from the West Coast to Hawaii. L. to R.: Lieut. Arthur Gavin, Lieut. Comdr. J. H. Strong, Commander of (Boeing) PB1, Comdr. John Rogers, senior flight officer and in command of PN9 No. 1, Lieuts. R. E. Davison, B. J. Connel, A. P. Snody, commander of PN9 No. 3



One of the Navy PN9's being tuned up for the West Coast to Honolulu flight

1000 mi., and a northeast wind of 20 knots for the remainder of the distance.

In addition to the protection afforded by the Navy station ships, arrangements will be made for merchant vessels along the line of flight to keep a sharp lookout. They will also be requested to make as little use of their radio as possible, in order to eliminate danger of interference in the radio operations of the planes and guard ships.

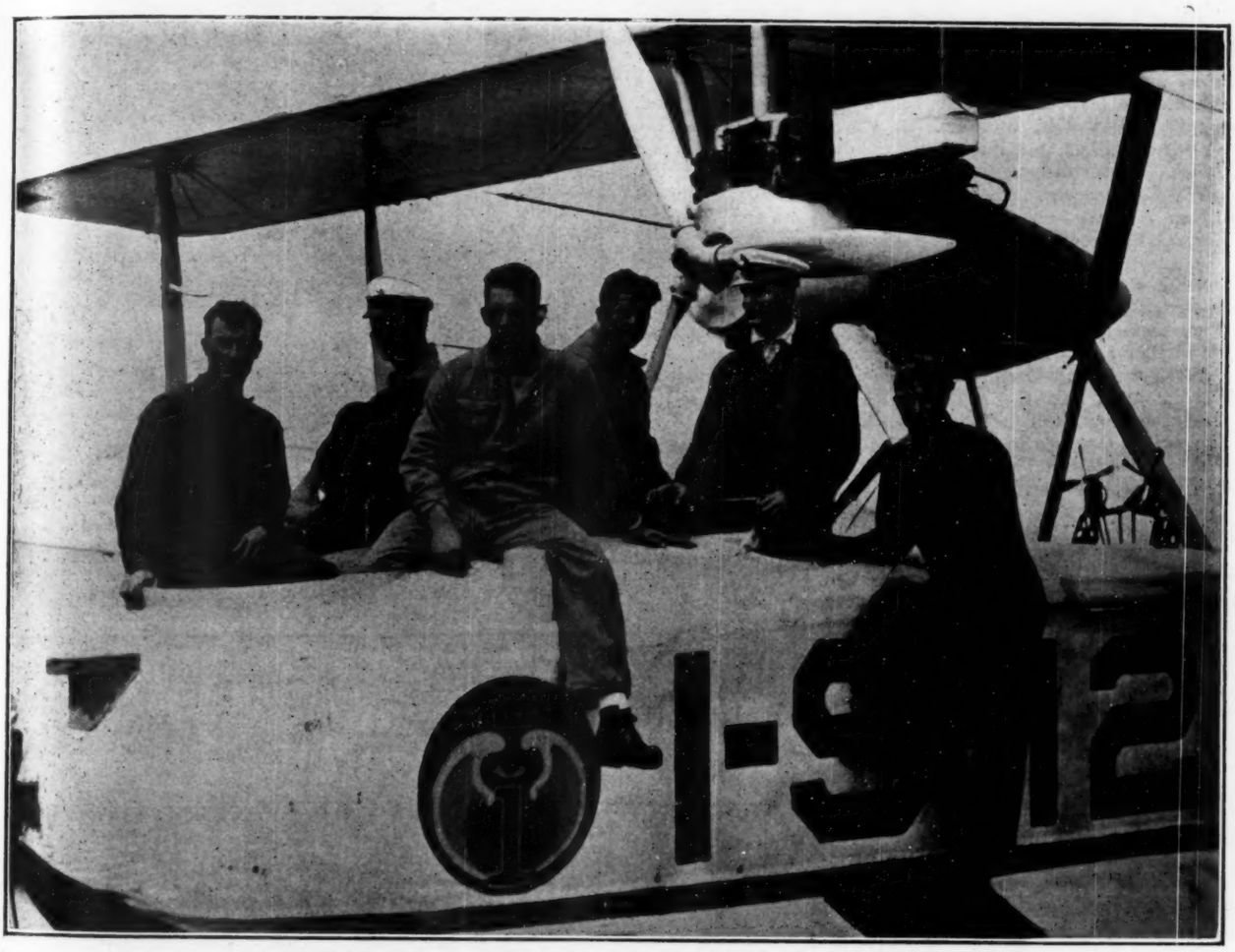
Each plane will be equipped with a radio transmitter and receiver, working only on 550 kilocycles, and the crew of each plane will include an experienced radio operator. The planes will not be equipped with the radio compass, but each of the station ships, except the mine sweepers, will have this equipment, and will be capable of taking radio bearings of the planes on 550 kilocycles. Instructions issued by Captain Moses state: "Bearing in mind the successful use of the radio compass in the Trans-Atlantic flight of the Navy seaplane NC4 (May 1919) no opportunity should be lost to take advantage of its possibilities on this flight."

The radio call letters of the planes on the flight will be as follows: 93-A, any or all of the planes; 93-B, plane no. one, Flight Unit Commander, 93-C, plane no. two; 93-D, plane no. three. The radio sets used by both planes and ships will be calibrated to operate on 550 kilocycles.

Information on surface and upper air conditions will be supplied up to the start of the flight by the Naval Air Station, Pearl Harbor, the U.S.S. *Langley*, the U.S.S. *Aroostook*, the U.S.S. *Corry* and the Base Station to be established at the starting point. When the flight has actually started, the use of radio to disseminate weather data will be discontinued, unless conditions unfavorable to the planes either develop or seem about to develop, in which case the information will be relayed to the planes by the guard ships.

The planes to be used will be two PN9 twin engined seaplanes, manufactured by the Naval Aircraft Factory, Philadelphia, and one PB1 (Boeing Patrol No. 1) twin engined seaplane manufactured by the Boeing Airplane Co. of Seattle.

The Flight Unit Commander, operating under the command of Captain Moses, is Comdr. John Rogers, U.S.N. He will also command PN9 plane No. 1. Lieut. A. P. Snody, U.S.N., will command PN9 plane No. 3. The other officers with the PN9 planes are Lieuts. A. Gavin and B. J. Connell. These four officers are from the Aircraft Squadrons Scouting Fleet. The PB1 plane will be commanded by Lieut. Comdr. J. H. Strong, U.S.N. and will have with him Lieut. R. E. Davison and R. Botta. These three officers are from the Aircraft Squadrons Battle Fleet. Lieuts. A. Crinkley and C. H. Schildhauer, U.S.N. are alternate pilots.



P. & A. Photo

Crew of one of the Navy PN9 flying boats which will attempt the Pacific Coast to Hawaii flight, scheduled to start Aug. 28. L. to R.: W. L. Griffin, S. R. Pope, N. H. Craven, C. W. Allen, O. C. Stantz and W. Bowlin

The PB1 (Boeing Patrol) seaplane was ordered to fly from Seattle to San Diego on Aug. 15 for new engine installation and other final preparations. Prior to Aug. 20 the personnel and material will be sent to Crissy Field, San Francisco, on the U.S.S. Gannet. The flight squadron, as well as escorting PN7 planes, were to fly to Crissy Field on Aug. 22.

According to present arrangements take off tests will be made and the planes refueled on Aug. 26 and 27, and every effort will be made for the actual start on Aug. 28, conditions permitting.

Editor of L'Aeronautique Visits U. S.

M. Henri Bouche Makes Tour of Fields and Factories

"Between 1,000 and 1,200 new airplanes and 1,200 and 1,500 engines are being constructed in France each year for military and commercial purposes," according to Capt. Henri Bouche, Editor in Chief of the French aviation periodical, *L'Aeronautique*, who sailed on Aug. 5 on the *DeGrasse*, on the last leg of a trip around the world.

"The French people and the French government believe that aviation is of the greatest importance to the future security and commercial prosperity of the republic," said Captain Bouche, who was a pilot during the World War, and who, in 1917-1918, commanded important French units of aerial photography at the front.

Building up Military Aviation

"We are consistently building up our military aviation through the encouragement of the aircraft industry," he said, "as we learned during the World War that air power is our easiest and most economical means of defense. We are methodically mapping out air routes to our colonies, and, wherever practicable, to points in other countries, and are doing everything possible, through direct subsidies, and through the establishment and maintenance of landing fields, night flying beacons and radio stations, and the provision of weather reports, to stimulate commercial aviation. The use of aircraft for business reasons is the great end sought.

"Aviation is commanding more serious attention than ever throughout the world. I was interested by the aeronautical activity of Japan which is now hampered by the fact that the government is financially embarrassed through losses from earthquakes and fire. Both the French and English, soon after the war, undertook to teach the Japanese aviation, we with the army and the English with the navy, and consequently, the machines used were English and French designs, but now the German designers are getting in. Being unable, under the Versailles Treaty, to manufacture aircraft in quantity at home, the Germans are constructing abroad, and have made factory arrangements with private Japanese firms, as with Italian and English.

"There should be important developments in commercial aviation in the United States in the next few years. Your big cities, situated long distances apart, should provide heavy traffic in mails and package freight. We agree with you that postal matter is the most likely and lucrative form of business for an air transport company to start with and we are now considering all our commercial air routes according to the amount of goods (mail and express) they are likely to produce.

Commercial Airways

"We have perhaps the largest system of commercial airways in the world, about 7,500 mi. Companies operate between Paris and London; Paris and Constantinople; Paris, Prague and Warsaw; Toulouse and Casablanca, and Antibes and Corsica. In the last year these operators flew millions of miles. The line from Toulouse to Casablanca, in Morocco, is being extended to Dakar, with the intention, ultimately, of spanning the South Atlantic to South America. We already have a link in South America, the line between Parnabuco, Brazil, and Buenos Aires.

"Our air navigation companies have learned that they can do better by carrying mail and goods than passengers. The reason is that goods and mail will bear, proportionately a much higher charge. This is true on the shortest important line—Paris-London—and on the 1,100 mi. Toulouse-Casablanca line. The Paris-London line is patronized mostly by tourists, who make one trip for the experience. In sending express matter, the annoyances of customs and transshipment are minimized. I think that, within two years, the air freight business between Paris and London will become so profitable that the operating company will carry fewer passengers proportionately, and devote itself almost exclusively to freight as the demand increases. On the Toulouse-Casablanca line, which saves three days, the operator receives five or six times more for mail than he does for the same weight in passengers. Last year I was in Morocco and neglected to reserve my return seat. When I applied, I found bookings fifteen days ahead. Each day, one plane carrying 200 kg. of mail and two passengers starts from either terminal. The quantity of mail is increasing (it is now about 12,000 letters daily) and consequently the operator, Mr. Latecoere is more interested in postal than in human freight.

M. Henri Bouche, editor of L'Aeronautique, who has been studying aviation conditions here

"All French aviation, as far as policy is concerned, centers about the Undersecretariat for Air, headed by Laurent Eynac, who, in addition to being a member of the Cabinet, is also a member of the Chamber of Deputies. Under Mr. Eynac are four divisions, research, supply, air transport and meteorology. This year Mr. Eynac will distribute 40,000,000 francs, about $2,000,000 in cash subsidies to the operators on the routes I have named. It is a long established French policy that the government shall provide, within French territory, of course, properly marked airways, landing fields, with hangars and other service facilities, beacons, radio and weather reports. These facilities are available to all operators who, of course, have to pay a small charge for hangar space and other facilities.

Relation to National Defense

"In every case, theoretically, all commercial equipment is available for the national defense but, personally, I think that the fundamental technical differences between commercial and war machines will increase every year, according to the more and more specialized tasks of military aviation. However, commercial aviation, working every day under very difficult conditions and trying to solve particular problems for safety

and reliability, is of a very great technical interest for the improvement and perfection of both engines and machines.

"As far as the commercial pilots are concerned, I am not inclined to believe that their aid would be of great value in war time, according to the fact that the lines would be kept, if possible, in regular operation, that these pilots are and must be as few as possible for a given traffic, and the qualities required by commercial and military flying operators are highly different.

National Law Assists Operators

"The operators are further assisted by a national air law, based upon the international code, which we signed in 1919. Our law provides for the regulation of air traffic—the inspection of pilots, fields and equipment. Licensing of pilots is done directly by the State. The fields, of course, are cared for by the State. Inspection of equipment, and the issuance of certificates of airworthiness, are left to the Bureau Veritas, a private organization, which, for a hundred years, has performed this service for marine shipping. It is similar to Lloyds' in England, and to your various underwriters. By means of such inspection we have been able, in the last two years, to get big reductions in insurance rates. All this works for safety, both to the people who fly and to the invested capital. In France we have practically no gypsy fliers. We try to prevent irresponsible, itinerant flying and thus have saved many lives. I would call gypsy flying anti-aviation propaganda, because it is so harmful.

"French air appropriations this year total about 500,000,000 francs, equivalent at prevailing exchange, to $22,000,000, though, when the purchasing power of the franc is considered, the amount is larger.

"While we have aviation in Army, Navy, Colonial and Undersecretariat, our purchases for all equipment are made through the French Supply Service. By having a common purchasing organization we get the most out of our money. With annual appropriations about equal to yours in purchasing power, we have been able to buy each year 1,000 to 1,200 planes and 1,200 to 1,500 engines.

No Government Competition

"The French government does not manufacture airplanes, engines, propellers, instruments, parts, accessories or supplies. We have no government aircraft factory. All money for construction thus goes to the industry. We do not attempt to tell the manufacturers how to build in detail, and we thereby encourage industrial initiative. Our policy is one of deliberate encouragement. We seek competition in design. When our technical service calls for new designs, these are submitted to a commission, representing army, navy and civil aviation. Experimental orders are given at a negotiated price to a successful designer. Should the type go into production, a specified number of airplanes are first ordered from the designer, and the rest are then allocated, at a negotiated price, to other units of the industry. Design rights are recognized by the government and industry and royalties are paid to the designer.

"The French government buys specimens of foreign aircraft for experimental purposes but are not inclined to permit a foreigner to come in, set himself up in business on a government order, and then compete with our own industry. That would be contrary to public policy and would be unwise from the standpoint of national defense. Foreigners must deal through accredited French plants. The French aircraft industry consists of about 20 aircraft and six engine plants. All told, these employ about 10,000 men."

A.C.C. Removal Notice

After July 27, 1925, the offices of the Aeronautical Chamber of Commerce of America, Inc., and the Air Mail Extension Committee will be located in Suite 602, 300 Madison Ave., N.W. Corner 41st St., New York. The telephone number will remain unchanged, Vanderbilt 3246.

Army and Navy in Pulitzer Race

At a conference held on July 31 by Rear Admiral W. A. Moffett, Chief of the Bureau of Aeronautics, Navy Department, Major Gen. M. N. Patrick, Chief of the Army Air Service, Brig. Gen. J. E. Fechet, Assistant Chief of the Army Air Service, and Capt. E. S. Land, of the Bureau of Aeronautics, Navy Department decisions were reached in regards to the participation of Army and Navy planes in the International Air Races to be held at Mitchel Field, L. I., on Oct. 8, 9 and 10 of this year.

It was agreed that the first of the three high speed planes being procured jointly by the Army and Navy for entry in the Pulitzer High Speed Race, to be held Oct. 10, will be flown by both Army and Navy pilots, who are to be principals and alternates in the Pulitzer Race. When the second plane is delivered, it will be decided by lot as to whether this plane will go to the Army or the Navy, and it will be flown only by the pilots of the Service which secures it. The third plane will be taken by the Service which did not secure the second plane. After the first plane has been delivered the Navy will take the first plane and test it as a seaplane, preparatory to using it in the Schneider Cup Race to be held near Baltimore on Oct. 24.

In addition to the entry by each service in the Pulitzer Race of one of the new high speed planes now being procured, it was agreed, inasmuch as the conditions for the race apparently call for not less than three entries, that the Army will provide one or more of its fastest pursuit planes as entries in this contest, and will turn over to the Navy one or more of these pursuit planes to be flown by Navy pilots.

Both the Army and the Navy will have entries in the Liberty Engine Builders' Trophy Race, an event of the International Air Races. In case there is no foreign entry in this race, it was agreed that the Army and Navy will enter none but standard DH observation planes with the usual DH wings and Liberty engines. This will result in all of the entries in this race being practically identical. In case there is a foreign entry, the Army Air Service and the Navy will be at liberty to put into this race any bona-fide two place observation planes which they can prepare for the event.

The Army, under these conditions, may have available some of the XO1 or XO2 fast observation planes, or some of both of these types. Should there be more than one of this type which can be made available, it was agreed that these planes will be divided between the Army and Navy pilots.

Laboratory Assistant Wanted

The United States Civil Service Commission announces an open competitive examination for a Junior Mathematician.

Receipt of applications for the examination will close on Sept. 12. The date for assembling competitors will be stated on the admission cards sent applicants after the close of receipt of applications.

The examination is to fill vacancies in the Langley Memorial Aeronautical Laboratory under the National Advisory Committee for Aeronautics, Langley Field, Hampton, Va., in positions of laboratory assistant qualified as computer and plotter.

Entrance salaries range from $1,860 to $2,400 a year, depending upon the qualifications of the appointee and the duty to which assigned. Promotion to higher grades may be made in accordance with the civil service rules, as vacancies occur.

The duties are to compute research experimental data and observations resulting from tests of aircraft; aeronautic power plants, and model aircraft or aircraft components; to compute tables of reference based on established physical relationships; to compute characteristics of measuring elements of special aeronautical instruments; to make graphs or plots of above data and computed results; to analyze data with aid of integraph, integrator, planimeter and other similar instruments; to make drawings for illustrations for aeronautical research reports; to construct graphic models to show results of investigations of pressure distribution and similar problems.

Ford Acquires Stout Company

Buys All Stock and Will Enlarge Production Facilities

The Ford Motor Co. has purchased the Stout Metal Airplane Co. and will begin production of the metal planes on a larger scale than was followed under the old organization, it was announced last week.

For the preferred capital stock, the Fords paid at the rate of two for one, it was reported. The capitalization was $300,000, but from $50,000 to $100,000 remained unsubscribed. The price paid by the Fords would therefore be $400,000 to $500,000.

The transfer also involved 90,000 shares of common stock of no par value held by William B. Stout and his immediate associates. The amount paid for this stock has not been revealed.

According to an announcement appearing in the *Ford News*, a paper circulated among employees, the Ford Company purchased all stock and assets of the Stout company July 31. The plant was closed until Aug. 3 for inventory and on the latter date opened under the new management.

William B. Stout, the designer of the all-metal plane, as well as all of the other men connected with the Stout company, have been retained by the Fords.

Heretofore the Ford company's financial interest in the Stout plant amounted to about $3,000. Henry and Edsel Ford each held $1,000 in stock, as did William B. Mayo, chief engineer of the Ford company.

On Ford Land

About 10 months ago, the Stout company accepted an offer from the Fords of some land in the Ford Airport for a factory site and began the manufacture of planes, which were put into service between Detroit, Cleveland and Chicago, carrying Ford freight.

The Fords have contributed the facilities of their organization to the further development of the plane and it has been thought generally that sooner or later they would acquire control of the company.

The announcement in the *Ford News* follows:

"The Ford Motor Co. became a manufacturer of airplanes July 31 by purchasing all stock and assets of the Stout Metal Airplane Co.

"The building of Stout all metal planes will henceforth be carried on by the Stout Metal Airplane division of the Ford Motor Co.

"Operations will be continued in the factory building at the Ford Airport, Dearborn, where four planes have already been built, and others are under construction.

Stout Still in Charge

"Mr. Stout, who developed the present model after 15 years of experimentation and was a pioneer in building an all-metal monoplane of the thick wing type, remains in charge of plane manufacture, while the personnel of expert engineers and mechanics also have been retained.

"The Stout plant and manufacturing equipment were purchased by the Ford company for the purpose of accelerating airplane development by backing the work with the diversified resources and experience of the Ford organization.

"The scope of experimental operations will be widened, while manufacture of the present type, which has proved highly successful in Ford air freight service will be continued on a larger scale.

"The Stout plant was closed down Friday, July 31, for inventory, and opened Monday, Aug. 3, under the new management.

"The association of the Stout Metal Airplane Co. with the Ford organization began less than a year ago when on completion of the airplane factory building at the Ford airport, Oct. 15, 1924, Henry Ford and Edsel Ford contributed its facilities to the development of the Stout plane, of which only one of the present type then existed.

"The Stout plane was selected as being the most highly developed type in America and because it appealed to Mr. Ford as the most logical, dependable and safe."

Mr. Knerr Resigns from N.A.F. Staff

Announcement has been made of the resignation of Horace C. Knerr as Chief Metallurgist, U. S. Naval Aircraft Factory, Philadelphia, after seven and a half years in that capacity. Mr. Knerr will engage in professional practice as a consulting metallurgical engineer specializing in heat treatment and metallography of steel and light alloys. He has recently joined the staff of the Summerill Tubing Co., seamless steel tube manufacturers of Bridgeport, Pa., in a consulting capacity.

Finance, Engineering and Management—Henry Ford, Wm. B. Stout and Edsel Ford—A triumverate who are making American air transport a reality

Regulations for the National Air Races

To Be Held at Mitchel Field, L. I., Oct. 8, 9 and 10

The rules and entry blanks for the National Air Races including the Pulitzer speed contest have just been published and can be obtained from the New York 1925 Air Races, Inc. of 30 East 42 St., New York, N. Y. As has been previously announced the races will be held at Mitchel Field, Garden City, L. I. on Oct. 8, 9, and 10. There is given below a summary of the chief technical conditions of the various racing events, as contained in the first edition of the regulations. The races are sanctioned by the National Aeronautic Association and are held under the auspices of the Local Chapter of the N.A.A. while the races are conducted under the rules of the Federation Aeronautique Internationale, F.A.I.

"On to New York" Race

Event No. 1-A

This contest for the trophy presented by the New York Chapter of the N.A.A. is open for civilians only and will be held from Sept. 27 to Oct. 7.

Total Prizes $3,000. First Prize, $1,000; Second Prize, $700; Third Prize, $500; Fourth Prize, $300; Fifth Prize, $200; Sixth Prize, $150; Seventh Prize, 100; Eighth Prize, $50.

The conditions of contest are as follows:

Competing planes must be flown from a point 200 mi. or more (air line) from Mitchel Field, L. I.

This contest is open to any make or type of aircraft. The flight may start at any time after Sept. 27, 1925. The finishing time will be taken when the pilot delivers his Log of Flight at the Contest Committee Headquarters, Mitchel Field, L. I.

All pilots competing in this contest must land at Mitchel Field and deliver Log of Flight after 6:00 a. m., Oct. 2, and before midnight, Oct. 7.

In view of the wide variety of planes whose owners have signified their intentions of entering this event, the Contest Committee will base its findings and award prizes according to the following four charts:

Average Speed Based on Total Elapsed Time—Average speed will be determined by dividing the air distance between points of departure and Mitchel Field, L. I., by total elapsed time.

The maximum number of points to be awarded on average speed is 100. For example: A plane making the flight at an average speed of 150 mi./hr. will be awarded 100 points, and for each mile per hour less than 150 mi./hr., it will be awarded one less point.

Distance Covered—In order that pilots flying from distances greater than 500 mi. may not be penalized by having to land and take on extra fuel with the resultant reduction in average speed, based on elapsed time, the following points will be awarded on total air line distance covered.

Planes starting at a point less than 500 mi. from Mitchel Field, L. I., will be awarded no points for distance.

Planes will be awarded 1 point for each additional 100 mi. above the 500 mi. specified.

Air line distance will be measured on Contest Committee map.

Passengers Carried—Ten points are allowed for each passenger carried with a maximum of ten passengers or one hundred points. Passengers must average 140 lb. each.

Engine Horsepower—(At the rate of 4 cu. in. displacement per horsepower)—A maximum of 200 points will be awarded to the plane completing the flight propelled by an engine of 40 cu. in. displacement or less. 5 points will be deducted for every 40 cu. in. increase in the cylinder capacity so that an engine of 1,600 cu. in. displacement will only receive 5 points and engines of more than 1,640 cu. in. displacement will not receive any points.

The cu. in. displacement will be that obtained from the McCook Field report for the make of engine used.

Prizes will be awarded on the total number of points received by contestants.

In case of a tie, the winner will be determined by lot.

Free-for-All Race for Two-Seater Low Horsepower Airplanes (Civilians only)

Event No. 1

To be held Thursday, Oct. 8 at 11: a. m.

Total Prizes $2,500. First Prize, $1,000; Second Prize, $600; Third Prize, $400; Fourth Prize, $250; Fifth Prize, $150; Sixth Prize, $100.

This race shall be contested by airplanes with engines having a total piston displacement of 510 cu. in. or less.

The conditions of the contest are as follows: Engine must have a piston displacement of 510 cu. in. or less. (Figures furnished by the Engineering Divisions of the U. S. Air Service at McCook Field will be accepted as standard.)

At the time of entry the entrant must supply the Contest Committee with a statement giving the bore, stroke, and cu. in. displacement of the engine to be used in the race, this statement to be properly executed before a notary public. The Contest Committee reserves the right to check the measurements of any engine entered and to demand the removal of a cylinder for this purpose. The decision of the Contest Committee will be final.

All airplanes must carry a total load of 340 lb., evenly distributed in two cockpits, this load to consist of pilot and one passenger, with sufficient ballast, if necessary, to bring their weight up to the required amount. It is requested by the Contest Committtee that all contestants carry ballast in lieu of passenger, in order to eliminate hazard in this respect. Under no consideration may open cockpits be covered.

The distance to be flown is 100 mi., 20 times around a closed course of 5 mi., starting at Mitchel Field, thence east to first turning pylon, thence north to second turning pylon, and return to Mitchel pylon.

Free-for-All Race for Two, Three or Four-place Airplanes (Civilians only)

Event No. 2

To be held Thursday, Oct. 8 at 1:00 p. m.

Total Prizes $2,500. First Prize, $1,000; Second Prize, $600; Third Prize, $400; Fourth Prize, $250; Fifth Prize, $150; Sixth Prize, $100.

This trophy shall be competed for by airplanes with engines having a total piston displacement of 800 cu. in. or less, and shall become the permanent possession of the entrant of the winning plane.

The conditions of the contest are as follows: Engine must have a piston displacement of 800 cu. in. or less. Figures furnished by the Engineering Division of the U. S. Air Service.

At the time of entry the entrant must supply the Contest Committe with a statement giving the bore, stroke, and cubic engine displacement of the engine to be used in the race, this statement to be properly executed before a notary public. The Contest Committee reserves the right to check the measurements of any engine entered and to demand the removal of a cylinder for this purpose. The decision of the Contest Committee will be final.

All airplanes must carry a total contest load of 340 lb., evenly distributed in two cockpits, this load to consist of pilot and one passenger, with sufficient ballast, if necessary, to bring their weight up to the required amount. It is requested by the Contest Committee that all contestants carry ballast in lieu of passenger, in order to eliminate hazard in

this respect. Under no consideration may open cockpits be covered.

The distance to be flown is 100 mi., 20 times around a closed course of 5 mi., starting at Mitchel Field, thence east to first turning pylon, thence north to second turning pylon, and return to Mitchel pylon.

Liberty Engine Builders' Trophy

Event No. 3

Race for Observation Type (two-place Airplanes. (Military only) to be held on Thursday, Oct. 8 at 3:00 p. m.

Total Prizes, $2,500 in Liberty Bonds. First Prize, $1,000 in Liberty Bonds; Second Prize, $700 in Liberty Bonds; Third Prize, $400 in Liberty Bonds; Fourth Prize, $250 in Liberty Bonds; Fifth Prize, $150 in Liberty Bonds.

The conditions of contest are as follows:

Load factor of wing cellule as loaded for start of race 6.5 high incidence condition. 4.5 low incidence condition.

Average speed greater than 90 mi./hr. during the race.

Total wing area must be greater than 290 sq. ft.

Cockpits must be left open, all other forms of streamlining permitted.

Carry the following "contest load," and, in addition, crew 340 lb. "Contest loads" shall be determined from the following formula, using as a basis the cubic inch displacement for the 400 horsepower Liberty engine.

$$\frac{400}{1649} \times \text{cu. in. displacement of engine used} \times 0.85 = \text{"Contest Load."}$$

Contest load shall consist of bags of inert ballast obtainable at Contest Committee Headquarters.

Contest load must be checked and weighed on contest scales after the race.

In case there is a question of total wing area or the cubic inch displacement of the engine, the Contest Committee reserves the right to use the figure given by the Engineering Division, McCook Field. The decision of the Contest Committee will be final.

NOTE: Fire extinguishers and parachutes may be included in the "contest load"; however, fixed instruments, gas, oil and water are excluded. Bomb racks, guns and mounts may be removed. At the time of entry the entrant must supply the Contest Committee with a statement giving the bore, stroke and cubic inch engine displacement of the engine and total wing area in square feet for the plane to be used in the race, this statement to be properly executed before a Notary Public.

The distance to be flown is 180 mi., 15 laps around a closed course of 12 mi., starting at Mitchel Field, thence east to first turning pylon, thence north to second turning pylon, and return to Mitchel pylon.

Mulvihill Model Trophy

Event No. 4

Duration Race for Model Airplanes to be held Friday, Oct. 9 at 9:30 a. m.

Total Prizes, $500. First Prize, $200; Second Prize, $100; Third Prize, $75; Fourth Prize, $50; Fifth Prize, $30; Sixth Prize, $20; Seventh Prize, $15; Eighth Prize, $10.

There are no restrictions on the design of the model except that they shall have a wing span not to exceed 40 in. All models must be hand-launched, and the only motive power will be that derived from the use of rubber bands.

The contest shall be for duration. A contestant will be allowed a total of three official flights. He will be accredited with the greatest elapsed time made in any one of his three flights.

A contestant will be allowed a maximum of three models, and he may use any or all to complete his official three flights.

He will be allowed five minutes within which to launch his model. Any flight under ten seconds will not be official, and is subject to the rules of a delayed flight.

No contestant may take part in the contest for this trophy unless he is a member of the Junior Flying League of the National Aeronautic Association, and in good standing. He must also be the owner and builder of the model submitted; however, the design for the model may be obtained from other sources than his own. He shall be the builder of the entire model with the following exceptions: Propellers, motor bearings and propeller shaft; also such other small metal fittings as may be used in the construction of the model may be purchased from outside sources.

Aviation Town and Country Club of Detroit Trophy

Event No. 5

Light Commercial Speed and Efficiency Race. (Civilians only) to be held on Friday, Oct. 9 at 11:00 a. m.

Total Prizes, $2,500. Speed: First Prize, $750; Second Prize, $350; Third Prize, $150. Efficiency: First Prize, $750; Second Prize, $350; Third Prize, $150.

The conditions of the race are as follows: An average air speed greater than 80 mi./hr. in race. The Contest Committee may require any entrant to fly one lap of the course before the race with the racing load to prove an air speed greater than 80 mi./hr.

Factor of safety of wing cellule as loaded for start of race: 4 low incidence condition; 6 high incidence condition.

Engine or engines must have a total piston displacement not to exceed 800 cu. in. Cubic inch displacement will be taken from the rating as given in the official McCook Field report.

All airplanes must be constructed to seat, comfortably, a pilot and at least two passengers. It is requested by the Contest Committee that all contestants carry 170 lb. ballast in lieu of each passenger in order to eliminate hazard in this respect. The proper amount of passenger ballast must be carried in the space reserved for each passenger. Under no consideration may obviously open cockpits be covered during the race. This does not eliminate "cabin" type fuselages which allow the passengers to be comfortably seated in the cabin during the flight.

The general condition and design of plane to be such that in the opinion of the Contest Committee it is safe and not a menace to other contestants or spectators. The Contest Committee reserves the right to refuse to admit any airplane which does not comply with these requirements.

The distance to be flown is 100 mi. 20 times around a closed course of 5 mi.

Dayton Daily News Light Airplane Trophy

Event No. 6

Race for Light Airplanes, (Civilians only), Friday, Oct. 9 at 1:00 p. m

Total Prizes, $2,000; First Prize, $1,000; Second Prize, $500; Third Prize, $350; Fourth Prize, $150.

The conditions of the contest are as follows: Engine must have a total piston displacement of 80 cu. in. or less.

150 lb. will be the minimum weight for pilots. In case the pilot weighs less, shot ballast shall be placed in the cockpit to make up this poundage.

General conditions and design of plane to be such that in the opinion of the Contest Committee it is safe and not a menace to other contestants or spectators. The Contest Committee may require a demonstration flight with racing maneuvers on such planes whose safety they consider questionable. The Contest Committee reserves the right to refuse to admit any airplane which does not comply with these requirements.

NOTE: It is suggested that the lowest factor of safety for the wings of a light plane should not be less than four.

The distance to be flown is 50 mi., 10 times around a closed triangular course of 5 mi., starting at Mitchel Field, thence east to first turning pylon, thence north to second turning pylon (observation balloon at 500 ft. altitude located 2 mi. distant), thence returning to Mitchel pylon.

Detroit News Air Transport Trophy

Event No. 7

Race for Large Capacity Airplanes, (Military only), to be held on Friday, Oct. 9 at 3:00 p. m.

Total Prizes, $2,000 in Liberty Bonds. First Prize, $1,000 in Liberty Bonds; Second Prize, $500 in Liberty Bonds; Third Prize, $350 in Liberty Bonds; Fourth Prize, $150 in Liberty Bonds.

The conditions of the contest are as follows: Load factor of wing cellule as loaded for start of race: 4 high incidence condition. 3 low incidence condition.

Average air speed greater than 85 mi./hr. in the race.
Capable of carrying pay load of 2,000 lb. or over.
Total wing area must be greater than 600 sq. ft.
"Contest Load":

All airplanes will carry a contest load in addition to crew 340 lb., also gas, oil, and water sufficient for the race.

The contest load shall be determined from the following formula, using as a basis the cubic inch displacement for the 400 hp. Liberty engine.

$$\frac{400}{1649} \times \text{cubic inch displacement of engine or engines used} \times 2 \text{ lb.} = \text{"Contest Load."}$$

Contest Load shall consist of inert ballast obtainable at Contest Headquarters.

Fire extinguishers and parachutes may be included in the "Contest Load," however, fixed instruments are excluded. Bomb racks, guns, and mounts may be removed.

General conditions and design of plane to be such that in the opinion of the Contest Committee it is safe and not a menace to other contestants or spectators. The Contest Committee reserves the right to refuse to admit any airplane which does not comply with these requirements.

The distance to be flown is 120 mi., 10 times around a closed course of 12 mi.

Scientific American Trophy

Event No. 8

Speed and Efficiency Race for Light Airplanes, (Civilians only), to be held on Saturday, Oct. 10 at 11:00 a. m.

Total Prizes, $2,000. Speed: First Prize, $600; Second Prize, $350; Third Prize, $150; Fourth Prize, $100. Efficiency: First Prize, $400; Second Prize, $200; Third Prize, $125; Fourth Prize, $75.

The conditions of the contest are as follows: Engine must have a total piston displacement of 80 cu. in. or less.

All planes must carry a total load of 150 lb., this load to consist of pilot and shot ballast if necessary.

Gas tanks must be completely filled and sealed by the Contest Committee before the race.

General condition and design of plane to be such that in the opinion of the Contest Committee it is safe and not a menace to other contestants or spectators. The Contest Committee may require a demonstration flight with racing maneuvers on such planes whose safety they consider questionable.

The distance to be flown is 50 mi., 10 times around a closed triangular course of 5 mi., starting at Mitchel Field, thence east to first pylon, thence north to second pylon, and return to Mitchel pylon.

Efficiency Contest—The winner of first place shall be the pilot who has completed ten laps of the course (50 mi.) with the highest figure of merit according to the following formula, providing the pilot places in one of the first four positions in the speed portion of the contest.

$$\text{Figure of merit} = \frac{\text{Speed of completing race in mi./hr.}}{\text{Gasoline consumed.}}$$

The gas tank seal will be broken by the Contest Committee on completion of the race, and each plane will be credited with a gas consumption equal to the amount required to completely refill the tanks.

A bonus will be paid to the entrant of each airplane finishing in one of the four positions in the speed portion of the contest. This bonus will be paid at the rate of $10.00 for each cubic inch the displacement of the engine used is less than 80.

John L. Mitchell Trophy

Event No. 9

This race for pursuit type planes is a closed event for pilots of the first pursuit group and will be held on Saturday, Oct. 10 at 1:00 p. m. There are three cups awarded but no prize money. The distance to be flown is 120 mi., 10 times around a closed course of 12 mi., starting at Mitchel Field, thence east to first pylon, thence north to second pylon, and return to Mitchel pylon.

Pulitzer Trophy

Event No. 10

The Pulitzer race is an international event for high speed airplanes having an air speed greater than 175 mi./hr., as loaded for start of the race and a stalling speed not exceeding 75 mi./hr. The race will be held on Saturday, Oct. 10 at 3 p. m. Total prizes $4,000. in Liberty bonds, first prize $2,000, second prize $1,000, third prize $750, fourth prize $250.

The conditions of the contest are as follows:

Load factor as loaded for start of race. Wings: 7½ High incidence condition with center of pressure at its most forward position. 5 Low incidence condition with center of pressure at location corresponding to maximum ground speed. 4 Reverse load condition.

Fuselage: 7 Flying and landing loads. The strength values for wood as given by the Forest Products Laboratory for 10 per cent moisture content and the Army method of stress analysis shall be used in making all strength calculations.

Air speed greater than 175 mi./hr. as loaded for start of race. Planes must average not less than 175 mi./hr. for the entire distance of the race to qualify for prizes or position. Stalling speed not to exceed 75 mi./hr. in still air. *NOTE.

Sufficient tankage must be provided for the Pulitzer route plus 33⅓ per cent. This shall be based upon engine consumption determined from approved dynamometer test and estimated length of time required to complete the race. The decision of the Contest Committee shall be final.

Each entry must be accompanied by a properly drawn and certified statement giving the fuel consumption of the engine at the maximum r.p.m. to be used in the race.

Visibility and maneuverability (land and air) which, in opinion of the Contest Committee, is not a menace to other contestants or spectators.

All planes entered in this race must be so designed with proper exhaust manifolds, shields, deflectors, ventilators, or other design characteristics, which, in the opinion of the Committee, will prevent exhaust gases from reaching the pilot during flight. Any plane not so equipped or designed will be subject to disqualification.

All planes in this race must leave the ground under their own power only, must not discard any part of their equipment in flight, and must have proper landing equipment attached at all times.

The distance to be flown is 200 km. (124.27 mi.), 4 times around a closed triangular course of 50 km. (31.07 mi.), starting at Mitchel Field, thence east to first pylon, thence north to second pylon, and return to Mitchel pylon.

*NOTE:
Under item (c) Article 1. "Conditions of Contest," is prescribed the condition that the theoretical stalling speed must not be greater than 75 mi./hr. in still air. This shall be calculated theoretically, and it is a condition of this contest that each entrant file with the Contest Committee, not later than *30 days prior* to the contest, the following data:

(A) The gasoline tanks of the airplane shall provide for a 33⅓ per cent surplus over the actual fuel required to complete the race as provided in Article (1), paragraph (d) of these regulations. The weight of the airplane ready to fly shall include a pilot at 180 lb., but will not include the weight of the 33⅓ per cent excess of gasoline. The excess weight of tankage to provide for the additional gasoline shall not be deducted from the weight of the airplane.

The stalling speed shall be calculated by the following formula:

$$\text{Stalling speed in mi./hr.} = \frac{\sqrt{\text{Weight of airplane in lb.}^*}}{\text{Wing area in sq. ft.} \times K_y \text{ max.}^\dagger}$$

*=Weight shall be as provided in sub paragraph (A).
†=K_y maximum shall be determined as provided in sub paragraph (c).

(b) Accurately dimensioned profile of section or sections used, and wing area in square feet. The total wing area shall be taken as the projected area of the freely exposed main surfaces, from root to wing tip, on the plane of the X and Y axes of the airplane. The thrust line may be considered as the X axis. Axle fairings, if of a lifting section, may be included as wing area.

(c) Characteristic curve showing maximum K_y given by a test of a rectangular wing model of the airfoil section or sections used, 3" x 18" in size. In the case of tapered wings,

wings with wash-in or wash-out built into the wings, or arrangement other than a straight airfoil, the model shall be geometrically similar to the actual wing used and have an area of approximately 54 sq. in.

The stalling speed shall be calculated from the maximum K_y obtained on the model. No corrections such as speed scale, aspect ration, biplane effect, stagger, etc., will be allowed.

All wing models must be tested under uniform conditions at a speed of 40 mi. in wind tunnels selected by the Contest Committee of the National Aeronautic Association. An "official" wind tunnel will be designated in each country making entry.

(d) If, after the airplane has been weighed in accordance with these regulations, and checked against the model characteristics submitted, the theoretical stalling speed shall be found in excess of 75 mi./hr., the airplane will be penalized in the race at a rate of (4) mi./hr. for each mile an hour the stalling speed is in excess of 75 mi./hr. The permitted theoretical stalling speed of 75 mi./hr. shall not be exceeded by more than 3 per cent without total disqualification.

General Regulations

The following regulations apply to all events.

No pilot may take part who does not possesses the Federation Aeronautique Internationale Aviator Certificate and annual license issued by the Contest Committee of the National Aeronautic Association. Certificate and annual license must be shown to race officials on demand.

Any contestant breaking the rules of the race or subsequent ones which may be sent out in writing, may, upon recommendation of the judges, be disqualified.

All pilots must taxi and fly on the same predetermined course and must not cross or attempt to cross in front of another plane during the "take-off." A plane overtaken in the air must hold its altitude and true course. A plane overtaking a slower plane shall not pass or attempt to pass between that plane and a turning pylon. The pilot of the faster plane having passed a slower plane on his left at approximately the same altitude, shall round the next turning point or pylon at a radius greater than 150 ft. unless the slower plane is approximately 500 ft. in the rear. All pylon turns will be to the left.

Pilots shall pass outside all turning points and in plain view of officials stationed at each point, and at an altitude of not more than 400 ft. "Contestants in making turn, must pass completely outside the pylons, taking them always on the same hand which will be indicated by the rules." After crossing the finishing line, all planes shall continue on their course until they have attained the altitude of 1,000 ft., then they may turn and return to the field, and land in that part of the field assigned for landing, and in so doing shall not cross the course or finish line. Fouling a mark—"Any competitor who has failed to turn a pylon properly may validly continue on the circuit provided he makes a complete turn of the said stake and then continues his trip in the same direction." (F.A.I. Rules, Art. 115.)

No protest shall be considered unless presented in writing to the Contest Committee within twenty-four hours after the finish of the race. (F.A.I. Rules 78, 79, 80.) (Appeals, see F.A.I. Rules, Article 178-179.)

Each plane shall have a number assigned to it by the Contest Committee, which shall be painted on the bottom surface of lower wings, and on each side of the fuselage, clear of the wing, in characters as large and clear as possible. It shall have no other numbers or lettering over twelve inches in height.

P. & A. Photo

Junkers plane with Junkers 74.8 hp. engine which participated in the Round-Germany Contest

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Farman Plane Flies 45 Hr. 11 Min.

On Aug. 7 at 5:34 a. m. the French pilots Drouhin and Landry set out to break the worlds duration and distance record. They landed at 3 a. m. on Aug. 9, having remained in the air 45 hr. 11 min. 59 sec. without refueling. The machine used was a single motored Farman which took off with 14,300 lb. of fuel and oil on board.

The flight was in the neighborhood of Etampes and for 43 hr. 32 min. the pilots flew over a measured course of 62 mi., during which time they covered 2,732 mi. This beats the distance flown by Kelly and Macready by 212 mi., but as the French aviators continued their flight over the airdrome for nearly another two hours they surpassed the T3's record by a considerable amount.

The new record established is a tremendous jump over the previous worlds record of 37 hr. 59 min. set by Drouhin and Coupet last year. For a number of years previous to this the record for duration had been increasing comparatively slowly. In 1920 it stood at 24 hr. 19 min. made by a Farman; in 1921 at 26 hr. 19 min. made by a JL6; in 1922 it was boosted to 34 hr. 19 min. by Drouhin, also flying a Farman Goliath, and in 1923 Kelly and Macready took it back to America by flying a Fokker for 36 hr. 4 min.

The pilots slept by turns during the flight and said that they could have continued further had they had enough gasoline. The distance covered was easily enough to have carried them from Paris to New York so that the accomplishing of such a flight now becomes a matter of courage, skill and luck.

N.A.T. To Begin Service with Curtiss Planes

Coffin Gives Reasons for Selection and Outlines Policy

Several interesting sidelights on the National Air Transport, Inc., order for 10 Curtiss Carrier Pigeon airplanes and 35 Liberty engines, mentioned in the July 13 issue of AVIATION, appeared in a statement issued by Howard Coffin following a meeting of directors at which this decision was reached.

Mr. Coffin stated that the Technical Committee, consisting of Charles L. Lawrance, president of the Wright Aeronautical Corp., Paterson, N. J., and C. T. Ludington, president of the B.B.T. Co., Philadelphia, Pa., which furnished the flood lights for the air mail route had made a survey of the performance and rating of the existing types of commercial planes. In the selection of the Curtiss plane, prime consideration was given to maneuverability, pilot's visibility and delivery date.

"The Carrier Pigeon plane," said Mr. Coffin, "was designed with a special view to the requirements of the night air mail service, consideration also being given to the difficulty involved in negotiating the Allegheny Mountains in fog and darkness. The plane is equipped with one 400 hp. Liberty engine, has a speed of 116 mi./hr., a ceiling of 16,000 ft., a landing speed of less than 50 mi./hr. and a cargo capacity of 1,000 lb. with package freight or mail.

"The pilot is seated well behind the wings and well up in the fuselage and has in front of him the cargo compartment which is very stoutly built and completely waterproofed. His fore and aft vision of range lights is unobstructed.

"The top and bottom wings are interchangeable as are the rudder ailerons and elevators, which reduces to a minimum the number of spare parts needed to be kept in stock.

"The fuselage is of the welded steel tube type now practically standard in America.

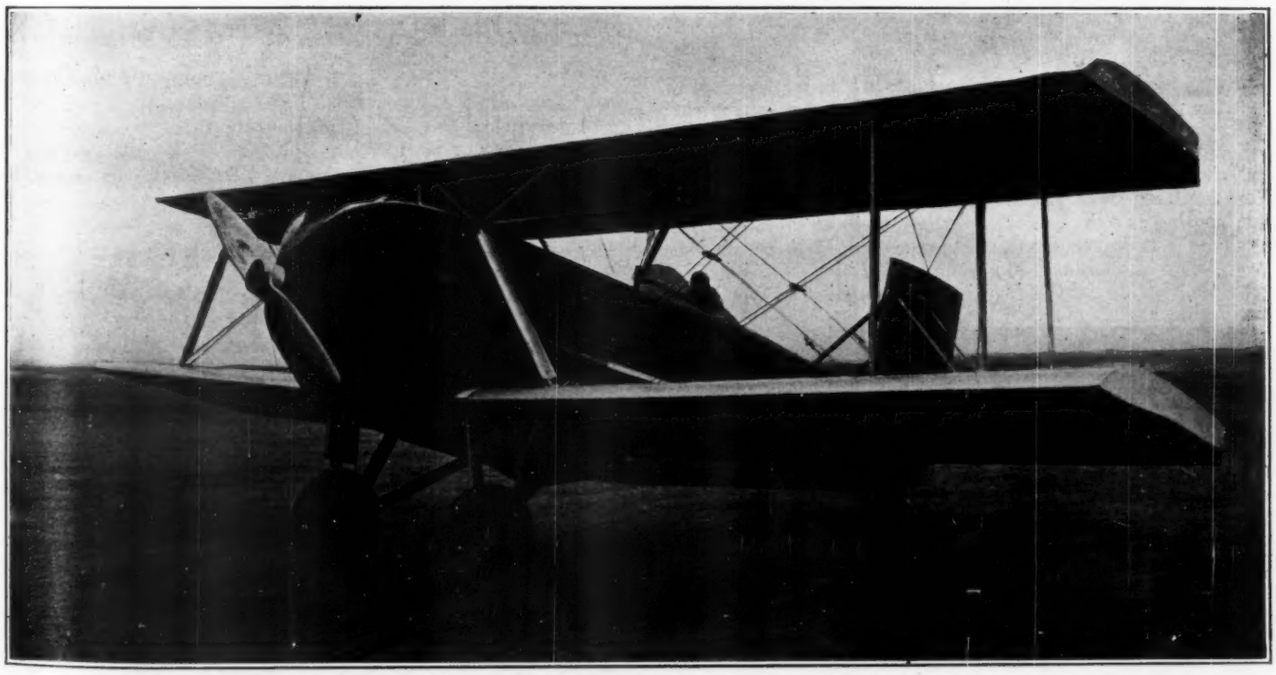
"The Carrier Pigeon," continued Mr. Coffin, "has been making test flights at night during the past thirty days and its performance indicates unusual dependability and safety to the pilot. No forced landings were experienced during these test flights, but landings were purposely made in some of the emergency landing fields enroute in order to demonstrate the maneuverability of the airplane in restricted spaces.

"Very shortly," said Mr. Coffin, "The National Air Transport will invite all aircraft manufacturers in the United States to give consideration to the design of new equipment which will be purchased later. A Technical Committee of experienced engineers and pilots will be appointed to make a survey of our requirements as revealed during the first two or three months of operation. A digest of the findings of this committee will be placed in the hands of each manufacturer, together with an invitation for him to submit designs which in his judgment best fit the requirements revealed by flying experience over the actual route itself. The National Air Transport does not plan to manufacture flying equipment. It will maintain at all times the 'Open Door Policy' to all aircraft manufacturers in the United States."

According to Mr. Coffin, a survey has also been made during the past thirty days, for the National Air Transport, of the European commercial aircraft situation and the tendency there toward the design of multi-motored planes.

"The report which we have just received from Europe," said Mr. Coffin, "indicates that before the end of the present year, six European commercial air transport companies will have in operation or in test, airplanes equipped with three engines.

"The theory of the three-engined airplane is that two engines will sustain the load, the third engine being kept in reserve, idling, ready to replace one of the other engines in case of engine failure. We are unable at this time to express an opinion as to the probable success of this new European practice, but shall watch it with much interest, hoping to gain valuable experience thereby. It is conceivable, however, that the three-engined plane will increase the package fright carrying capacity which in turn should help decrease the expense of operation per pound of freight carried.



Curtiss Carrier Pigeon mail plane, 10 of which have been ordered by the National Air Transport, Inc., for the New York-Chicago night freight service, (described March 23 AVIATION)

AIRPORTS AND AIRWAYS

Cleveland News

By Cy Caldwell

The City of Cleveland has let a contract for $43,701.50 for drainage of its Municipal Airport, the work to be completed in 45 days. A main sewer line of 39 in. diameter pipe will be laid 5700 ft. along the north end of the field. To this main line will run 60,000 ft. of 12 in. lateral pipe lines, assuring perfect drainage of the whole 1000 acres.

• • •

Cleveland Chapter N.A.A., the Air Mail, and everyone else interested in aviation in Cleveland are deeply appreciative of the splendid and untiring efforts of City Manager W. R. Hopkins to make a model Airport for Cleveland. We are proud of Cleveland's contribution to aviation, as I told a friend recently. He inspected me curiously, as though I were a new sort of bug. "Imagine pride in Cleveland!" he exclaimed. He lives in New York. I feel the same way when Frank O'Neill of Akron tells me about Akron. And I suppose Frank has a gentle laugh at Stow Corners. Civic pride is an amusing and harmless fad. I have even heard Casey Jones mention Garden City.

• • •

Lieut. Al Williams, U.S.N., holder of America's speed record was in Cleveland recently to be measured for a new Stearns-Knight sedan to add to his fleet of cars. Al has completed his law studies and passed his bar examination. So whenever he goes for a flight it will be correct to refer to him as a rising young lawyer. (This joke is protected by copyright. A joke like that needs protection.)

• • •

Cleveland Air Service, Inc., Ralph Thomas, manager, is operating a flying field and school 2 miles East of Berea, near Cleveland. They have two Standards and one Jenny in operation and are rebuilding two more Standards in a canvas hangar on the field. Gas, oil and service are available to visiting pilots. With 21 pupils for flight training, Thomas doesn't find time hanging heavy on his hands, though he does find the usual pupil hanging heavy on the stick. Wm. J. Dabney, his assistant, does passenger carrying.

• • •

Porter Adams very kindly suggests that AVIATION publish my notes in a bound volume and give free to subscribers. I believe Mr. Adams' suggestion of giving the volume free is the only method of getting the work into the hands of the public. I regret, Mr. Adams, that I have no bound volume of my works to send you, but as you seem to like my writings I am sending you the nearest approach to them in literature—a volume of Mother Goose Rhymes. You will be glad to learn that Casey Jones and I are publishing our joint biographies, written jointly in a joint. The title is "Two Pilots from Palestine."

• • •

The mystery surrounding the whereabouts of Ike, the Air Mail cat, who disappeared from his home in the tail of a DH three weeks ago, has at last been solved. When the Air Mail left Glenn L. Martin Field for the Municipal Airport, Ike was taken along, apparently to his deep regret. He seemed to miss something, to grieve. His days were given to restless pacings about the new hangar, his nights to yowlings. He mourned and would not be comforted. Life had become for him a bitter thing, the savor of it as ashes in his mouth. And then one day he vanished to be seen and heard no more.

Last week a pilot, landing at the lonely village of Bellefonte, buried, dead and buried, in the Pennsylvania Hills, saw a familiar form, heard a familiar voice—the form and voice of Ike.

Ike threw himself into the arms of his friend. In anguish he yowled to be taken from Bellefonte. I know how he felt—I have been in Bellefonte. He was put in a mail sack and flown to Cleveland, where he is now happy and content, his wanderings over.

No one knows how Ike got to Bellefonte, but it is almost certain he must have flown there in a DH. For years he has slept in the tail of a DH, getting out when the motor was run up, and going to another one. Unhappy at the Airport, pining for Martin Field, he must have conceived the idea of trying to get back in the only thing he knew, a DH.

Ike has been a bitter disappointment to H. B. Shaver, Asst. Supt. Eastern Division Air Mail. When he arrived years ago, a fluffy kitten, Shaver named him Ike after an uncle of his. Ike was of an affectionate disposition, a cat of a confiding nature. Too confiding, apparently. For when he was matured into a dashing and debonair cat, he startled his friends who had named him Ike, by presenting the Air Mail with a litter of kittens, in the tail of a DH. Ike's affectionate nature was limitless, and so were his families. But this admirable trait endears him not to Shaver, who feels, and rightly, that his confidence was misplaced. No cat named Ike should have a family. Ike has not lived up to his name.

Organizers of Tulsa Air Meet (Aug. 30 to Sept. 2) from L. to R.: W. C. Brown, H. R. Tucker, L. A. Woodring, D. A. McIntyre and Walker S. Estes, owner of the New Waco (See advertisement in this issue)

Kansas City News

Commercial activities have gone a little on the decline the latter part of this month due to unfavorable weather to a great extent. Local pilots report for the entire month approximately 2000 flights with a total of 300 hr. About 1800 passengers were carried.

Tex La Grone recently sold a Waco to Messrs. McIntyre & Brown, Tulsa, Okla. Mr. La Grone expects to leave for Troy, Ohio, within a few days to ferry to Richards Field another new Waco, same will be demonstrated for sale.

The Porterfield Flying School has added another Standard plane to their equipment with an additional plane now undergoing construction.

New England News Notes

By Porter Adams

The directors of the Boston Chamber of Commerce have announced the appointment of the following as members of the Chamber's Committee on Aviation for the next year: Chairman, W. Irving Bullard; Godfrey L. Cabot, Frank W. Merrick, E. J. Ovington, James P. Benna and Porter Adams.

Mr. Bullard is vice president of the Merchants National Bank, a vice president of the Chamber of Commerce, and very active in civic affairs in Boston. He has been intensely interested in aviation for a long time and was the donor of

the Bullard Cup which was presented at the opening of the Boston Airport.

Mr. Cabot is the president of the National Aeronautic Association and Mr. Ovington is a brother of Earle Ovington, pioneer aviator.

Lieut. Mark C. Hogue, formerly of the Army Air Service, and his passenger, George Burroughs, were killed when a plane piloted by Hogue fell on the tracks of the Boston and Revere Beach Railroad close to the Boston Airport on the afternoon of July 23. Hogue was dead when help reached the scene and the passenger died on the way to the hospital.

Hogue had recently organized the Aiglon School of Flying, and his previous experience included instructing in the Air Service, pilot of the Air Mail and demonstrator for Fokker in Holland. He was considered one of the best pilots in New England and his death came as a great shock to his many friends.

The cause of the accident was impossible to ascertain, but from the reports of eye witnesses it is believed to be a case of frozen controls as the plane was known to be in excellent condition, and was equipped with dual controls.

* * *

Dan Rochford in the *Boston Transcript* of Monday July 27, describes the work of the Naval Reserve Air Station at Squantum, under the command of Lieut. Comndr. Noel Davis as follows:—

"The greatest amount of flying ever done by a naval air station in the United States, the greatest amount of flying ever done in one week by any human being in the world, and the greatest monthly average ever maintained by a navy pilot, are the records which the Naval Reserve Air Station at Squantum brought to the glory of Boston and New England the past week. Lieut. R. D. Thomas flew 50 hr. and 56 min. This is believed to be the worlds record for one man in one week. He flew two nights to do it.

"The station flew 207 flights for a total of 12,975 min. or 216 hr. 15 min. This more than doubled the navy record made by the Chicago station of 103 hr.

"Except for about 6 hr. by visiting officers all the flying was done by the officers and students of the station."

We ran up to the Balsams at Dixville Notch, N. H., for a night last week and while there were sorry to learn that the New York-Dixville air service had been discontinued. No reason for the cancelling of the service was announced and hope was generally expressed that it would be soon resumed. This service has operated for the past two seasons with a practically perfect record, and made many friends for aviation by its splendid performance.

* * *

We had not been home more than a couple of hours when we were very happy to receive a flying visit from Lieutenant Elliot of Mitchel Field. Elliot was en route from the Balsams to New York and due to fog landed at East Thetford, Vt., about a mile away from the farm.

It was a flying visit in more ways than one, for he only stayed a short while until the fog lifted and took off for New York via Boston. He was flying Colonel Hensley's DH and if Cy Caldwell keeps his promise to come up and try the rhubarb pie he can get complete directions from Elliot. This also holds good for our New York friends who have promised to fly up and see us.

The Army at Boston for the week ending July 25 had a total flying time of 41 hr. 25 min., regular and reserve. Several New York pilots were visitors during the week, including Lieutenants Elliot, Williams, Garrett and Chandler. Also Lieut. A. J. Austin came up during the week with a bomber from Phillips Field.

Garden City News

By Warren J. White

Lieut. J. Doolittle tested on July 31 the new P1 Curtiss Pursuit plane which is the latest type ship developed for the U. S. Army Air Service. Doolittle took off from Curtiss Field, Garden City, N. Y., at 3:15 p. m. and, after executing a number of daring stunts, pointed the nose of his mile-eater west. He landed in Dayton, Ohio, at 6:32 central standard time.

John Parke Andrews, Curtiss pilot stationed at Curtiss Field, more famously known as "Andy" Andrews, disappeared from the Field last Tuesday. When he finally was located in Newark, N. J., it was learned that he had just been married to Miss Annette Baffa, of a prominent Mineola family. All extend congratulations and best wishes.

* * *

Albert Preen, a Curtiss student has purchased the first Ireland Comet, and is contemplating several long cross country jaunts in the near future. Last winter, Preen, who is a building contractor, when he is not aviating, purchased an OXJN and had A. L. Caperton of the Curtiss staff instruct him. Since learning how to fly he has traveled through the whole of Europe investigating aircraft conditions there.

* * *

Last Thursday Art Caperton, Curtiss pilot and foremost blonde aviator of the world, flew to Washington, D. C., and returned with pictures and newsreels of the late William Jennings Bryan funeral, for Pathé News. Train time was beaten by a good margin and scores another point for air transportation.

* * *

Four new students, representing several of the foremost institutions of learning in the country, have arrived at the Curtiss Exhibition Company's Garden City flying school for a primary course in instruction. They are Freeman Higgins of Yale, '23, John Adams of Lafayette, '25, and Abbott Riehle of University of Pennsylvania. The other student, Richard Reynolds, represents the famous tobacco family of Winston-Salem, N. C. He already possesses a Hisso Standard which he intends to bring north and continue his training with.

Sikorsky Sells Plane

The Sikorsky Aero Engineering Corp. has sold to the Aiglon Co. of Boston an Oriole equipped with Sikorsky high lift wings and OX5 engine. With these wings the performance of the ship with OX5 instead of the original C6 engine of higher horsepower has been materially increased, it being capable of a high speed of 110 mi./hr.

Fog Delays Night Mail

The night service between New York and Chicago was held up on Aug. 6 due to fog and poor visibility. Although the summer has been exceptionally rainy this is the first complete tieup which has occurred since the service was inaugurated on July 1. West bound mail was held up at New Brunswick and the East bound mail at Cleveland.

Mail Pilot Chandler Injured

In endeavoring to get through the fog pilot Harry A. Chandler lost his bearings after leaving Phillipsburg, N. J., and was forced to let loose a flare and land in an oat field at Bloomsburg, Pa. After locating himself Chandler tried to take off again but his landing gear became entangled in the oats and he made a slow take off with the result that he hit some trees on the edge of the field and plunged into a shallow part of the Susquehanna River. Chandler's skull was fractured and he received other serious injuries but he is expected to recover.

The fourteen sacks of mail were recovered and sent on to Bellefonte.

Stow Field Meet

The Contest Committee of the National Aeronautic Association announces the final results of the Akron Centennial Balloon Race for the Major Thomas Baldwin Trophy which was held at Stow Field, Akron, Ohio, on July 18, were as follows.

Starting time (schedule and actual)	*Name of balloon*	*Pilot and Aide*	*Ballast started with (bags)*	*Final distance (mi.)*	*Duration (hr. & min.)*
4:30	S59	Boettner & Collins	21½	217	27 hr. 30 min.
4:40	U. S. Army	Kuntz & Moyer	30½	179	19 hr. 45 min.
4:50	S57	Morton & Maxson	33	221½	22 hr. 40 min.
5:00	S59	Kraft & Cooper	21½	28	8 hr. 45 min.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Air Orders

Sec. Lieut. Jeffery Raymond Starks, A.S. Res., Washington, to active duty Brooks Field, reverting to inactive status Dec. 28.

Lt. Col. Richard Bronaugh Barnitz, A. S. Res., San Antonio, to active duty Brooks Field, reverting to inactive status Aug. 24.

Sec. Lieut. Francis Marion Coray, A. S. Res., Ventura, Calif., to active duty San Diego, reverting to inactive status Aug. 23.

Sec. Lieut. Dorsey Eugene Kinney, A. S. Res., St. Paul, to active duty Chanute Field, reverting to inactive status Aug. 23.

Sec. Lieut. Thomas Oates Hardin, A. S. Res., Waco, to active duty San Antonio, reverting to inactive status Aug. 23.

Capt. William Phillips Bates, A. S. Res., San Antonio, to active duty San Antonio Air Int. Dep., reverting to inactive status Aug. 24.

Sec. Lieut. David M. Ramsay, A. S., Kelly Field, transferred to Inf., Fort Sam Houston.

Spec. Or. 177 relating to Capt. Louis McComas Young, A. S. Res., revoked.

Activities of the San Antonio Air Intermediate Depot

During the six months' period from Jan. 1 to June 30, 1925, 262 airplanes and 441 engines were completely overhauled and repaired by the Engineering Department of the San Antonio Air Intermediate Depot, San Antonio, Tex., as follows: Airplanes—117 DH4B, 8 DH4B1, 2 DH4B3, 38 JN6H, 3 DH4B-P1, 8 SE5E, 14 MB3A, 21 DH4M1, 2 NBS1, 19 TW3, 6 VE9, 1 TP1, 1 CO4, 4 TW5, 11 MB3M, 7 AT1 Engines—254 Liberty 12A, 5 Wright A2, 92 Wright-I, 61 Wright-E, 12 Wright-H, 13 Wright H-3, 4 Lawrance L-4.

During the period above mentioned a completely overhauled and repaired airplane, ready for flight, was turned out every 4 hr. 6 min.; and completely overhauled engine, ready for installation in an airplane, was turned out every 2 hr. 26 min. In addition to servicing Army Air Service equipment, this Depot delivered to various National Guard units throughout the States during the last six months ending June 30, 1925, 18 TW3 airplanes with engines, 2 JN6H airplanes with engines and 9 spare Wright engines.

During the month of June, the Engineering Department, under the direction of Lieut. Clements McMullen, completely overhauled and repaired 54 airplanes and 97 engines, as follows: Airplanes—7 DH4B, 1 DH4B3, 4 JN6H, 3 SE5E, 3 MB3A, 10 MB3M, 15 DH4M1, 2 NBS1, 1 VE9, 8 TW3; Engines—48 Liberty-12, 1 Wright A-2, 10 Wright-I, 9 Wright-H, 2 Wright H-3, 27 Wright-E.

Lieutenant Sanderson Lands PW8 in the Water

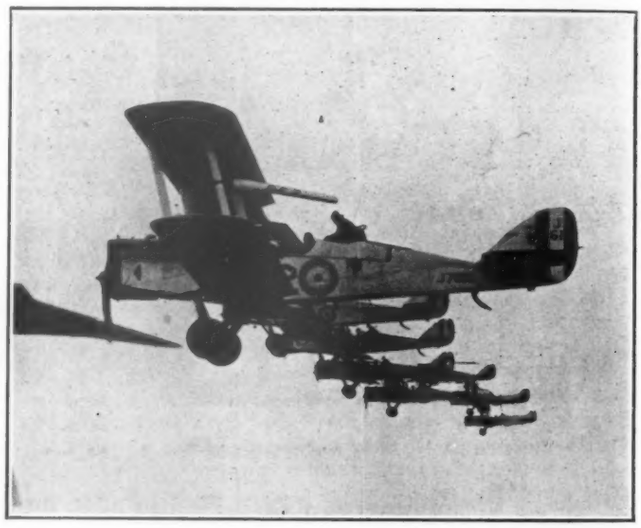
It will be remembered that Lieut. Lawson H. Sanderson landed his racing machine in Lake St. Clair during the 1922 Pulitzer Races at Detroit. The next year at St. Louis he ran out of fuel after finishing the Pulitzer race and adroitly picked a hay stack to land in. This year he has added another trick landing to his record by putting a PW8 down in the water at Aberdeen, Md.

On leaving Pitcairn Field, Philadelphia, Lieutenant Sanderson's machine lost a wheel at the moment he was taking to the air. The wheel in bouncing off damaged a longeron, but Sanderson decided to keep on going knowing that if he got a little altitude he could use his parachute and land safely. Once in the air he decided that he would try to save his machine and so he headed for Aberdeen. By the time he got there ambulances and patrol boats and a considerable crowd were on hand to watch the show. Sanderson drained his gasoline tank, cut his switch and pancaked down into four feet of water. The maneuver was so beautifully done that only the lower wings of the plane were damaged.

A Durable Map for Airways Flights

The Airways Section, Office, Chief of Air Service, is endeavoring to secure more durable strip maps for the use of pilots on airways and long cross-country flights. The paper strip maps now in use rarely last longer than one trip, usually being frayed or torn that when the pilot later makes a similar trip he finds it necessary to secure another set of maps. Furthermore, when a pilot makes an extended cross-country trip the strip maps, rolled up, become too bulky and difficult to handle.

The Airways Section recently received a sample strip map covering the airway from Wheeling, W. Va., to Washington, D. C., which is printed on a piece of balloon cloth, 14 by 35 in. This map is reproduced in all the varied colors of a lithographed paper map. The colors and lettering are clear



P. & A. Photo

A close up of one of the DH9 formations at the R.A.F. Display

and sharp, making the map very easy to read. The advantage of using maps printed on such finely woven material as balloon cloth can readily be seen. First of all, the map is very durable and can be used over and over again without any appreciable wear. Due to its pliability, a map covering, say, the airway from Washington, D. C., to Kelly Field, Tex., can be rolled up so compactly that it will be no thicker than a broom handle.

The only disadvantage such a map has is this very feature of pliability, for a pilot must hold it very taut in order to scan any particular part of it. Experiments are now being conducted with various kinds of chemicals which will tend to give these balloon cloth maps the neeessary stiffness for ease in reading, and when this improvement has been effected pilots will be relieved of the trouble of securing a new map every time they start out on a long aerial journey. Here the element of economy also creeps in, for with the adoption of cloth maps the Air Service will be able to function with a much lesser number of maps than at present.

The cloth map above referred to was produced by the Corps

of Engineers, U. S. Army. It is the result of experiments suggested by Col. W. C. Brown, U. S. Army, an officer of long and varied experience in map making.

U. S. NAVAL AVIATION

Navy Air Orders

Lt. Martin S. Stonestreet det. Airef. Sqds., Battle Flt., to Nav. Air Sta., Coco Solo, C. Z.

Lt. (jg) Sam L. La Haco det Airef. Sqds., Setg. Flt., to Nav. Air Sta., Pensacola.

Ch. Gun. William Wilkinson set. Airef. Sqds., Battle Flt., to further treat. Nav. Hos., Mare Is.

Lt. Norman R. Hitchcock det. U.S.S. Worden to temp. duty Nav. A. Sta., Pensacola.

Lt. (jg) Douglass P. Johnson det. Airef. Sqds., Setg. Flt., to Nav. Air Sta., Pensacola.

Lt. William L. Peterson det. Nav. Air Sta., Pensacola, to Airef. Sqds., Setg. Flt.

Ch. Carp. Arman Mayville det. U.S.S. Xamden to Nav. Air Sta., Pensacola.

Lt. Comdr. Martin Griffin det. Nav. A Sta., San Diego, to Airef. Sqds., Battle Flt.

Lt. Fred C. Dickey det. Nav. A. Sta., Pensacola, to Airef. Sqds., Battle Flt.

Lt. Robert H. Harrell det. Nav. A. Sta., Pensacola, to Airef. Sqds., Setg. Flt.

Lt. Robert P. McConnell det. Nav. A. Sta., Pensacola, to Airef. Sqds., Battle Flt.

Lt. Earle P. McKellar det. Nav. A. Sta., Pensacola, to Airef. Sqds., Battle Flt.

Lt. (jg) Lawrence W. Curtin det. Nav. A. Sta., Pearl Harbor, T. H., to Airef. Sqds., Battle Flt.

Lt. (jg) Earl R. De Long det. Airef. Sqds., Setg. Flt., to Nav. A. Sta., Pensacola.

Lt. (jg) Dixwell Ketcham det. Airef. Sqds., Setg. Flt., to Nav. A. Sta., Pensacola.

Marine Air Orders

Capt. H. C. Pierce det. M.B., Quantico, Va., to N.A.S., Pensacola.

First Lt. J. D. Swartout det. M.B., Quantico, Va., to N.A.S., Pensacola.

Fort Hamilton, N. Y.

Considering that they have only one seaplane and that an N9 of very ancient vintage, the Naval Reserve squadron at Fort Hamilton in New York harbor are doing a very considerable amount of flying. During the past two weeks they have run up a total of 53 hr. of flying. To anyone who has seen the machine and knows the operating conditions this is quite remarkable. The station had expected to receive several new training planes this spring and when these did not materialize a distinct shortage of material resulted. However, better times are in sight, for the station has received a UO1 from the Chance Vought Corp. and will have it in operation upon receipt of a landing gear from the Naval Aircraft Factory. It will be rather interesting to see how the UO1 works out as a primary training plane.

Shenandoah Tows Target

The guns of the Texas peppered away at the Shenandoah's target on the Southern drill grounds, about forty miles east of Cape Henry, on Thursday, July 23, and Friday. The target was sausage shaped, 10 ft. in diameter at the hoop. It was 45 ft. long. The firing was from 3-in. guns on the Texas, not more than six of which fired at any time. The ammunition was shrapnel. The speed of the target was 33 mi./hr. The actual altitudes were 4,200 to 4,300 ft. and 635 rounds were fired. In the first two runs the target approached from the beam starboard and port, and six guns fired, the range changing from approximately 4,000 yd. to 2,000.

Admiral Hughes reported that an examination of this target after it had been dropped, showed thirty-nine holes, one of which was a direct hit by the shell before it exploded.

Three runs were made on July 24 four guns firing on each run. The exact range was not given for these runs. Admiral Hughes reports that an examination of the target in the last three runs showed it had 763 holes, eleven of which were made by the unexploded shell in direct flight, the remainder being made by fragments of the exploded shrapnel, and that owing to the shape of the target two holes equaled one hit.

The sleeve towed was much larger than has ever been towed before. It was the first time that an anti-aircraft target had been used that was easily visible to the control party and gun pointers, and yet was of much smaller area than any aircraft.

Navy Maps Lake Okeechobee

An aerial photographic mosaic map of the shore of Lake Okeechobee, Fla., was recently finished by pilots and photographers of the Naval Air Station, Pensacola, Fla.

This work is the first of a series of aerial maps which will be made by Naval photographers of various sections of the coast line and lake shore lines of the United States for the Coast and Geodetic Survey.

P. & A. Photo

Vickers Vixen Military two-seater with Napier Lion 450 hp. engine

The work of mapping Lake Okeechobee was done at the request of the Secretary of Commerce. Approximately 1500 aerial photographs were taken, and will be developed and prints made from them at the Naval Air Station, Pensacola. The prints will be turned over to the Coast and Geodetic Survey in Washington where the completed map will be assembled. The area covered by the aerial photographs extended from the edge of the lake to one mile inland, all around the lake.

The Naval photographic party was in charge of Lieut. L. A. Pope, photographic officer at Pensacola, who was assisted by Lieuts. H. F. Carlson and Richard Whitehead, under instruction in photography. A photographic mapping plane, known as the R6L, powered with a 400 hp. Liberty engine was used.

Four enlisted men, mechanics, comprised the rest of the Naval party. They were assisted in the preliminary work, such as the laying out of ground markers visible from the air, for use in checking the aerial photographs, by representatives of the Coast and Geodetic Survey. The photographs were taken from an altitude of six thousand feet.

Helium Division Reorganization

A reorganization of the work of the helium division of the Bureau of Mines, Department of Commerce, has been effected with the appointment of R. A. Cattell, formerly superintendent of the Petroleum Experiment Station, Bartlesville, Okla., as Engineer in Charge, and Dr. Andrew Stewart, chemist, as executive assistant. Dr. Stewart will be acting chief of the division during the absence of Mr. Cattell.

The responsibilities relating to helium research and development hitherto resident in the Division of Mineral Technology have been transferred to the Helium Division.

The Helium Division will consist of five sections, to be known as the Natural Gas Section, the Production Section, the General Section, the Research Section and the Repurification Section.

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PUBLISHER'S NEWS LETTER

Occasionally, there breaks into the prosaic routine of a publishing office a ray of bright sunshine in the guise of an interesting visitor. Such a pleasant guest passed our way the latter part of July when we were honored by the opportunity of making the acquaintance of M. Henri Bouche, Editor of our highly esteemed French contemporary *L'Aeronautique*. He had been spending the last few months in making a trip around the world visiting India, Japan and China. After his arrival at San Francisco, he traveled to all the important areonautical centers in this country. Captain Bouche served in the French army until he was severely wounded. Later, he joined the French Air Force and served with distinction, making a speciality of photographic reconnaissance. Shortly after the War he was offered the direction of *L'Aeronautique*, one of France's leading aviation journals, which he accepted and has built it up to the enviable position that it occupies today. His trip around the world was to make the personal acquaintance of the aeronautical people of other countries so that he would have a personal impression at close range of the leaders and factories of which he will write.

* * * *

Of course not the least interesting part of the interviews was the discussion of publishing problems and policies. It was most consoling to learn that AVIATION has not been alone in its opposition to government controlled publications, and that in France as in England, the air services do not compete with civilian publications. It was also surprising to be informed that the circulation of *L'Aeronautique* was practically the same as AVIATION. Coming as this did after similar information from *The Aeroplane*, we are led to the conclusion that there are about a certain number of persons interested in the more specialized phases of aviation and this group reads the papers that are edited for those who want their aeronautical news handled in an informative manner. Equally important was the news that each French aircraft manufacturer set aside a definite sum for advertising in the aeronautical papers and allocated it to the several publications, using full pages in colors a great part of the time.

* * * *

Perhaps one of the most interesting observations made by Captain Bouche was the difference in the methods in handling races here and in France. There according to his account, speed races are held to gain technical information and not to make a public spectacle of the tests. At the Beaumont Cup races last year there were not more than five hundred persons present and those came by invitation. Making money out of races was neither attempted nor encouraged. In fact it was startling to learn that there were no airplane races held in France that could be compared with our meets. If the services hold competitions they are to improve the morale and the public is invited to witness the affair free of charge. As France is again capturing practically all the worthwhile records, it may be time soon to give heed to the methods in vogue there as compared to here. The governments abroad do not appropriate anywhere from $200,000 to two or three times that sum for the construction of racing planes. Nor do they have the advantage of government maintenance or piloting. The incentive, as we believe in the long run will be found to be the best here also, is pride of technical excellence and reputation.

* * * *

Without underestimating the very great interest in aviation that he observed in Japan, he brought away a very sensible impression of the status of the Japanese air development. He had no jingo tales of thousands of airplanes being built as a warlike gesture. On the contrary he seemed to feel that while great progress was being made technically through contracts with French, English and German firms that the absence of fundamental industries and raw materials was a handicap that would be difficult to overcome. While these were only impressions we received and may be very wide of the exact feeling of our visitor, it is of the greatest interest to get such calm views from an observing and informed source.

* * * *

Comparisons as to the methods of regulating aviation abroad and here were equally informative. There, the inspection of aircraft is left to a private company, much the same as Lloyds. Pilots are given their licenses by the government but the government has no such bureau as is proposed by the Winslow Bill for the Department of Commerce. Whether or not regulation has had any effect on the privately owned aircraft, it is practically non-existent or on such a small scale that it is negligible. The tendency has been to create monopolies, or a select few that build and operate aircraft. Here; all the larger manufacturers and operators are in favor of government regulation but the smaller firms and the individual owners are not so unanimous in their opinions as to the advantages.

* * * *

Before closing this fragmentary letter, it is our great pleasure to record the general opinion that was freely expressed by all who had the opportunity of meeting the Editor of *L'Aeronautique*. Summed up, it was felt that such interchanges of visits did much to bring about a better understanding of the problems that confront each country from the aviation standpoint, particularly when they bring such a well informed and courteous guest.—L.D.G.

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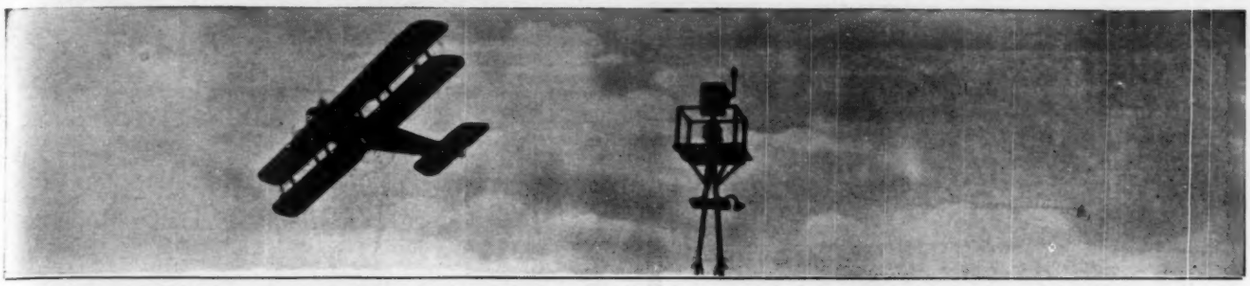

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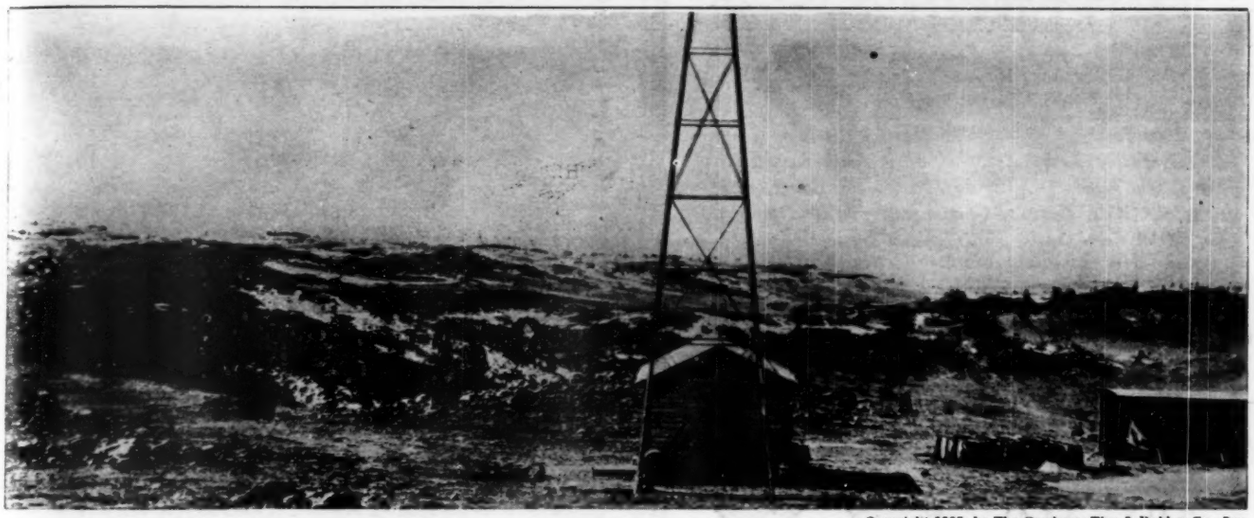

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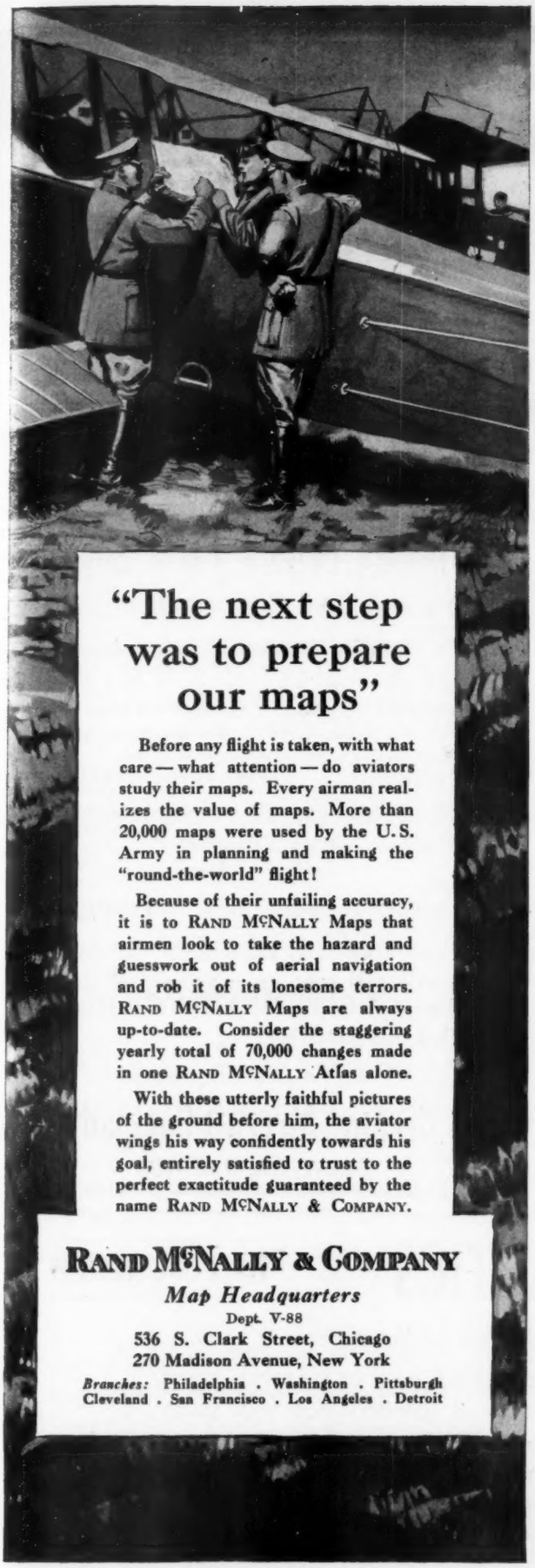

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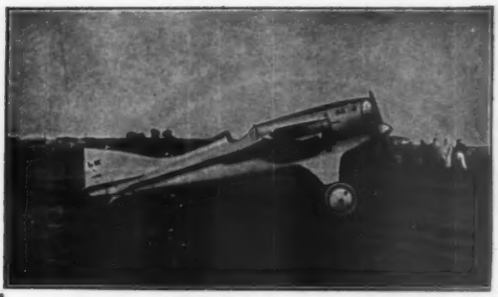

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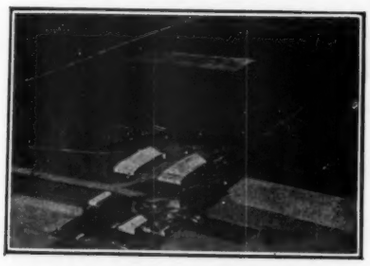

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Cost less to operate

The low cost in time and labor for engine inspection and repairs, the excellent oil and fuel economy (sometimes less than 8 gal. per hr.), the small quantity and reasonable price of spare parts due to the unit construction all make the Whirlwind engines economical to operate.

DURABILITY

A stock Whirlwind engine flew over 100 hrs. at *full throttle* and full RPM without replacement or adjustment of a single part or loss of revs. This is the equivalent of 300 hrs. of normal part throttle flying. Many of the 16 Whirlwinds with the Huff Deland Dusters are over the 100 hr. mark carrying their 600 lbs. of dust with a hard zoom each time the cotton patch is crossed. No greater durability test could be given airplane engines than this daily grind with heavy loads, heat, rain, bad fields, dust, constant take-offs, and operating hundreds of miles from their repair bases. Durability can only be built into an engine or an automobile by constantly improving such parts as are found to give trouble. This is a task of years. A stock production Whirlwind (then Lawrence) won the Marine Trophy at the Detroit Air Meet in 1922. Since then 4 new models have been made with hundreds of changes, most of them for durability.

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The saving in weight and resistance of the water radiation systems gives either better performance, higher ceilings, or MORE PAY LOAD.

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A rigid 90 day "new car warranty" goes with each of these commercial Whirlwind engines. This warranty when backed by a responsible company is a great measure of protection to commercial operators. This warranty has been and will be administered to give real protection.

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